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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/683,713	02/06/2002	Hilmar Gugel	21295-40	8638

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EXAMINER
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NGUYEN, THONG Q

ART UNIT	PAPER NUMBER
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2872

DATE MAILED: 05/10/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

 <b>Office Action Summary</b>	<b>Application N .</b> 09/683,713	<b>Applicant(s)</b> GUGEL ET AL.	
	<b>Examin r</b> Thong Q. Nguyen	<b>Art Unit</b> 2872	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_ .
- 2a) ☐ This action is FINAL.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
     If approved, corrected drawings are required in reply to this Office action.
- 12) ☒ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
     a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_ .
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
     a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                  | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____ . |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>3</u> . | 6) <input type="checkbox"/> Other: .  |

## **DETAILED ACTION**

### ***Priority***

1. Receipt is acknowledged of papers filed under 35 U.S.C. 119 (a)-(d) based on an application filed in German on 02/14/2001. Applicant has not complied with the requirements of 37 CFR 1.63(c), since the oath, declaration or application data sheet does not acknowledge the filing of any foreign application. A new oath, declaration or application data sheet is required in the body of which the present application should be identified by application number and filing date.

### ***Oath/Declaration***

2. The oath or declaration is defective. A new oath or declaration in compliance with 37 CFR 1.67(a) identifying this application by application number and filing date is required. See MPEP §§ 602.01 and 602.02.

The oath or declaration is defective because:

Non-initialed and/or non-dated alterations have been made to the oath or declaration. See 37 CFR 1.52(c).

### ***Drawings***

3. The drawing contain five sheets of figures 1-7 filed on 02/06/2002 have been received by the Office.

### ***Specification***

4. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is

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requested in correcting any errors of which applicant may become aware in the specification.

5. The disclosure is objected to because the present Summary of the invention as provided does not comply with the requirement as set forth in 37 CFR 1.73. See also MPEP 608.01(d). The present Summary is objected to because it is too long and contains numerous information of the inventive device. Applicant should amend the Summary by providing a brief description of the inventive device and transfers all of the detailed description to the section of Detailed Description in page 8.

6. The disclosure is objected to because of the following informalities: In page 10: on line 8, "290" should be changed to --390--. See figure 4. Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 and its dependent claims recite at least one optical member disposed in the illuminating light path and/or in the detecting light path of a microscope

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having double objective lens systems for influencing the amplitude, phase or polarization of the light. While the specification discloses that the optical element is an amplitude filter or a phase filter or a retardation plate or a phase plate... (see specification in pages 6-7); however, such information concerning the optical element as provided in the specification is not sufficient to enable one skilled in the art to make the device claimed without undue experimentation. For instance, it is unclear to one skilled in the art to determine and then use which optical element from the mentioned elements to influence the characteristics of the light as claimed. In other words, one skilled in the art will not know which element should be used to modify the point spread function of the light or to increase the distance among the maxima of the point spread function or to diminish the intensity of the secondary maxima, etc...

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

a) Claim 1 is rejected under 35 USC 112, second paragraph for the following reasons: First, the feature thereof "at least one... beam path" (lines 4-5) is indefinite because it is unclear how a single optical component can act on two separate light path. Applicant should note that the terms "at least one" could be understood as one component; Second, the feature thereof "the optical

component...the light" (lines 5-6) is indefinite because it is unclear about the manner in which the optical component is configured so that it influence the amplitude, phase or polarization of a light beam; Third, the feature thereof "the characteristics the light in...modifiable" (lines 6-8) is indefinite. It is unclear what 'characteristics' of the light applicant implies in the mentioned feature.

b) Claim 2 is indefinite by the recitation thereof "the optical component... scanning microscope" (lines 1-4). The mentioned feature recites that the optical component modifies the PSF in the illuminating beam path and the PSF in the detection beam path (Examiner's emphasis) ; however, the base claim 1 recites that the optical component act on either the illuminating light path or the detection beam path. Note the use of the term "and/or" in the feature "at least one...beam path" in claim 1, lines 4-5.

c) Claim 4 is unclear due to the claim language being used inaccurate. In particular, it is unclear about which components being used to define the distance in the point spread function of the illumination beam path and of the detection beam path.

d) Regarding each of claims 6, 15 and 16 , the phrase "preferably" (claim 6, line 4; claim 15, line 2 and claim 16, line 2) renders the claim indefinite because the claim includes features not actually disclosed (those encompassed by "preferably"), thereby rendering the scope of the claim unascertainable. See MPEP § 2173.05(d).

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e) The remaining claims are dependent upon the rejected base claim and thus inherit the deficiencies thereof.

### ***Claim Objections***

11. Claim 6/3 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form.

It is noted that all of the features recited in claim 6/3 are recited in its base claim

3. In particular, the feature concerning the location of the secondary maxima of the PSF at different axial positions is readable in the feature thereof "the point spread...shape and/or position" (claim 3, lines 1-4).

### ***Claim Rejections - 35 USC § 102***

12. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

13. Claims 1, 7-12, 14 and 16, as best as understood, are rejected under 35

U.S.C. 102(e) as being anticipated by Nagano et al (U.S. Patent No. 6,025,956)

Nagano et al disclose a fluorescent microscope having an illuminating system and a detecting system, and teach the use of at least one optical element in each of the illuminating beam path and the detecting beam path for the purpose of influencing the optical characteristics of the illuminating beam and the detected beam. For instance, in columns 7-9 and figs. 4 and 6-7, they teach the use of a bandpass filter (26) and a slit (27) in the illuminating beam, and a modulator (31) in the detecting beam. It is also noted that the optical section (34-36) for viewing the sample acts as a detecting system because the pending claims fail to provide any specific structural limitations for the detector. It is also noted that in the incident illuminating system used with the microscope, Nagano et al teach the use of a dichroic mirror (32), a filter (33) in the detection beam and a filter (42) in the illuminating beam.

14. Claims 1-8, 10, and 13-16, as best as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Krause (U.S. Patent No. 5,587,832).

Krause discloses a scanning microscope having an illuminating system and a detecting system. In columns 2-5 and figs. 1-3, he teaches the use of a pattern aperture array (14) in the illuminating beam path and a pattern aperture array (32) in the detecting beam path. The light from the light source (18) is modified by the array (14) and then reflected from a dichroic element (22) to incident on the specimen (20). The light from the specimen passes through the element (22) to incident onto a detecting system (26). The operations of the arrays (14 and 32) are under the controls of a computerized system. As a result, the illuminating



light as well as the detected light are subjected to modifications based on the operations of the arrays. While Krause does not clearly state about the point spread function and the features concerning the principal maxima and the secondary maxima; however, it is noted that the optical element as described in the specification, in particular, in pages 5 and 6, sections [0021] and [0023], are directed to a LCD and a deformable mirror without any specific limitations concerning the structures of the optical element. Thus, the use of a deformable mirror array and/or ferroelectric liquid crystal (see figs. 2-3 and column 4) disclosed by Krause meets the results as recited in present claims 2-6. With regard to the feature concerning the so-called "double confocal scanning microscope" as recited, it is noted that the claim just refers to the terms without any specific structural limitations. As such, the mentioned feature is not given a patentable weight.

15. Claims 1-8, 10-12, 14 and 16 rejected under 35 U.S.C. 102(b) as being anticipated by Dixon (U.S. Patent No. 5,386,112).

Dixon discloses a scanning microscope having an illuminating system and a detecting system. In column 10 and fig. 8, for instance, he teaches the use of an analyzer (802) in the detecting beam path, and a set of analyzers and a half-wave plate (714) in the illuminating beam paths. The light from the light source (202) is scanned by a scanning system and then modified by the analyzers and the half-wave plate and then focused on a specimen. The light from the specimen is guided to a detecting system. The operations of the analyzers and

the half-wave plate will change the amplitude of the light intensity, the phase of the light beams, etc... As a result, the illuminating light as well as the detected light are subjected to modifications based on the operations of the mentioned optical elements. While Dixon does not clearly state about the point spread function and the features concerning the principal maxima and the secondary maxima; however, it is noted that the optical element as described in the specification, in particular, in pages 5 and 6, sections [0017] and [0020], are directed to an optical element in the form of a filter or a polarization without any specific limitations concerning the structures of the optical element. Thus, the use of a polarization disclosed by Dixon meets the results as recited in present claims 2-6.

16. Claims 1-8, 10-12, 14 and 16, as best as understood, are rejected under 35 U.S.C. 102(b) as being anticipated by Gustafsson et al (U.S. Patent No. 5,671,085).

Gustafsson et al discloses a scanning microscope having an illuminating system and a detecting system. In column 19 and fig. 32, for instance, they teach the use of an optical system for varying the phase of illuminating light beam, and a filter in the detecting beam path. The use of polarization elements and dichroic elements are also suggested by Gustafsson et al as can be seen in columns 16-18. The operations of the polarization elements and the filters will change the amplitude of the light intensity, the phase of the light beams, etc... As a result, the illuminating light as well as the detected light are subjected to modifications based on the operations of the mentioned optical elements. While Gustafsson et

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al do not clearly state about the point spread function and the features concerning the principal maxima and the secondary maxima; however, it is noted that the optical element as described in the specification, in particular, in pages 5 and 6, sections [0017] and [0020], are directed to an optical element in the form of a filter or a polarization without any specific limitations concerning the structures of the optical element. Thus, the use of a polarization disclosed by Gustafsson et al meets the results as recited in present claims 2-6.

### ***Conclusion***

17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

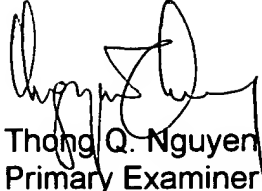
18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thong Q. Nguyen whose telephone number is (703) 308-4814. The examiner can normally be reached on M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cassandra Spyrou can be reached on (703) 308-1687. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 308 0956.

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Thong Q. Nguyen  
Primary Examiner  
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May 2, 2002